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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,924	06/22/2006	Philippe Le Roy	PF030185	4851

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EXAMINER

LEIBY, CHRISTOPHER E

ART UNIT	PAPER NUMBER
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2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,924

Applicant(s)

LE ROY, PHILIPPE

Examiner

CHRISTOPHER E. LEIBY

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. **Claims 1-13** are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/4/2011 has been entered.

Claim Objections

3. Claim 1 is objected to because of the following informalities: newly amended subject matter states ..."as soon as a modulator of each columns is turned on...". This is the assumed current modulator for each emitter array disclosed earlier in the claim. Replaced the underlined "a" with the word "the" for correct antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being obvious over **Bu** (US Patent Application Publication 2002/0101172).

Regarding **independent claim 1**, Bu discloses an active-matrix image display device comprising: several light emitters forming an array of emitters distributed in rows and columns (*figure 2 and paragraph [0002] wherein an active driving system refers to an active matrix driving system which comprises of a two dimensional arrays of OLEDs in rows and columns*);

means for controlling the emission of the emitters comprising: for each emitter of the array, a current modulator comprising a source electrode, a drain electrode and a gate electrode, a drain current being able to pass through said modulator in order to supply said emitter, for a voltage between the drain or the source and the gate equal to or greater than a trip-threshold voltage (*figure 2 reference 21 and paragraphs [0020]- [0022]*),

for each modulator, storage means capable of storing electric charges at the gate electrode of the modulator (*figure 2 reference 23*), for each row emitters, row select means capable of selecting in succession the emitters of each row of emitters, for programming these emitters (*figure 2 reference scan signal 3 sent to 54, 53, and 22*), and

for each column of emitters, column address means capable of addressing in succession each selected emitter of said column of emitters by applying, during the programming step of this selected emitter, a value

representative of a data set point to the gate electrode of the modulator associated with this emitter in order to actuate it (*figure 2 reference 4 and paragraphs [0019]-[0022]*), during a programming step, for each row of emitters, row select means capable of selecting in succession the emitters of each row of emitters (*figure 2 reference 3 and paragraphs [0019]-[0022]*), during the programming step and for each modulator, storage means capable of storing electric charges at the gate electrode of the modulator (*figure 2 reference 23 and 21 and paragraph [0022]*); and

current supply means capable of supplying current simultaneously to all of the emitters of each column through a same and single current supply line during both emission steps and programming steps of the emitters of said column, as soon as a modulator of each column is turned on (*figure 2 reference ground directly connected to transistor 21 wherein the current flowing through the OLED is compared between REF and DRV, via 53 and the single current supply line described later, shown in figure 2 changing the gate voltage of transistor 21 during the programming phase paragraph [0021] and then the emission enables 21 via 23 and further turns off 53 and enables 54 and VS on the single current supply line starting from VS through 54, 1, 21, and ground which is used for both the emission and programming phase of the circuit as soon as the modulator is turned on, paragraph [0022], since the scan signal designates the programming and emission phases through inverted signals on 54 and 53 on the single current supply line*); and

trip-threshold voltage compensation means comprising comparators, the comparators being capable of comparing, during the step of programming a selected emitter, a value representative of the drain current supplying the

selected emitter with the value representative of the data set point for controlling the quantity of charge stored in the storage means,

wherein the compensation means comprise, for each column of emitters, a one single separate unit for determining a representative value of the drain current supplying the selected emitter on the basis of a measurement of a representative value of the current for supplying all of the emitters of the column, and for turning on the emitters already during the programming step (*paragraphs [0020]-[0022] wherein the capacitor 23 of figure 2 is adjusted so that the OLED is not affected by the characteristics of transistor 21 and figure 2 reference 6 for current comparator which compares drive current with a reference current; transistor 21 wherein the current flowing through the OLED is compared between REF and DRV, via 53 and the single current supply line described later, shown in figure 2 changing the gate voltage of transistor 21 during the programming phase paragraph [0021]*).

Bu does not disclose a single separate unit for determining a value of drain current across the pixel OLED.

Bu does disclose a unit 6 within the active matrix pixel to determine the drain current through the OLED (*paragraphs [0018]-[0019]*).

It would have been obvious to one skilled in the art at the time of the invention that placing the detection circuit 6 within the active matrix pixel enables the detection circuit to enable constant detection of the emission current at a faster rate as compared to a passive matrix scheme wherein the signal must be brought out of the pixel to be compared and placed back into the pixel.

Regarding **claim 2**, Bu discloses an image display device, wherein the current supply means for the emitters are connected directly to each modulator of the control means (*figure 2 reference ground directly connected to transistor 21*).

Regarding **claim 3**, Bu discloses an image display device , wherein the current supply means for the emitters are connected directly to each emitter of a column through one single power supply line(*many different driving schemes are available to send current to the OLED however in the case of Bu transistor 21 and 54 open or switch to an on state to directly connect the OLED to their respective power supplies*).

Regarding **claim 4**, Bu discloses an image display device, wherein the current supply means for the emitters comprise a voltage supply generator capable of supplying all of the emitters of a column through one single current supply line and wherein the compensation means are capable of compensating in succession the trip-threshold voltage of each modulator of all of the emitters of this column (*paragraphs [0020]-[0022] and figure 2 reference 6 and VS and ground*).

Regarding **claim 5**, Bu discloses an image display device, wherein the compensation means further include: a drive generator capable of generating a drive signal applied to the gate of said modulator (*figure 2 reference 4*); and means for modulating the duration of said drive signal according to the value of the data set point and the value of the trip-threshold voltage (*paragraphs [0020]-[0022] wherein switch 54 switches to an off state to stop current from flowing into the OLED and hence stop the duration of emitting light*).

Regarding **claim 6**, Bu discloses an image display device, wherein the data set point is a data voltage and in that the comparators are capable of

emitting a warning signal when the voltage representative of the intensity of the drain current is equal to a number of times said data voltage (*figure 3 N1 and N2 provide the same function as a comparator and generate an output/warning signal through Nd2 and N3d to create a proportional output to the OLED paragraphs [0025]-[0026]*).

Regarding **claim 7**, Bu discloses an image display device, wherein the means for modulating the duration of the drive signal comprise: a switch connected in series with the drive generator (*figure 3 reference P3*); and a control unit capable of switching said switch (*figure 3 reference 6 specifically control unit N1 and N2 disclose whether to increase or decrease/data set point received or warning signal received via using N3 paragraphs [0025]-[0026]*), on the one hand, when the data set point is received, and on the other hand, when the warning signal is received.

Regarding **claim 8**, Bu discloses an image display device, wherein the drive signal generated by the drive generator is amplitude-modulated according to the value of the data set point (*paragraph [0025]-[0026] disclose wherein the drive current is increased or decreased which is amplitude modulation*).

Regarding **claim 9**, Bu discloses an image display device, wherein the drive generator is a current generator and the modulator is capable of being current-controlled (*figure 6 reference N2 and N1 which is a current mirror current controlled and paragraphs [0025]-[0026] wherein a drive current is output to the OLED*).

Regarding **claim 10**, an image display device, wherein the drive generator is a ramp voltage generator and the modulator is capable of being voltage-controlled.

Such a driving and control scheme does not emphasize any significance as what would be the benefit from applying such organization. Therefor, the examiner asserts that such are based on the design choice of device and provide no specific improvements and are merely inherent variations through the relationship of current and voltage to that disclosed in claim 9. Therefor, claim 10 is rejected on the same grounds as claim 9 and as discussed above.

Regarding **claim 11**, Bu discloses an image display device, wherein the compensation means further include a unit for measuring the intensity of a current, capable of measuring the intensity of the drain current passing through a selected emitter during the programming step (*paragraphs [0020]-[0022] wherein transistor 53 is left on to measure intensity of current passing through OLED in a programming step before emitting light*).

Regarding **claim 12**, Bu discloses an image display device, wherein the supply means comprise a line to which the measurement unit is directly connected (*figure 2 reference 6 connected directly to ground*).

Regarding **claim 13**, Bu discloses an image display device, wherein the storage means comprise at least one storage capacitor connected to the gate and to the source of the modulator and in that the compensation means further include reset means capable of applying a voltage pulse to said capacitor in order to discharge it (*figure 2 reference 23 and paragraph [0022] wherein adjustment includes charging and discharging*).

Response to Arguments

5. Applicant's arguments filed 2/04/2011 have been fully considered and are related towards newly amended subject matter. Refer to office action above for rebuttal. It is suggested as interview be conducted before a response is filed by applicant in order to further prosecution.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER E. LEIBY whose telephone number is (571)270-3142. The examiner can normally be reached on 9 - 5 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on 571-272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CL

February 11th, 2011

/Alexander Eisen/

Supervisory Patent Examiner, Art Unit 2629